

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-002066**Date Inspected:** 01-Apr-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Hu Wei Qing/Shi Zhi**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/Tower**Summary of Items Observed:**

The Caltrans Quality Assurance (QA) Inspector Roscoe Dixon was present at the time requested to randomly observe welding and associated operations being performed for the Orthotropic Box Girders (OBG).

Bay 7 OBG:

The QA Inspector randomly observed ZPMC Welder Wang Chang Fa, ID 058102 utilizing the Shielded Metal Arc Welding (SMAW Process with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2112 to tack weld various 12mm thick to 30mm thick transition plate material.

The plates witnessed being tack welded on this date were identified as floor beam series piece mark FB010-005-026, FB010-006-026, and FB010-005-026.

The QA Inspector visually verified the electrode filler metal for the SMAW process for tack welding as TL-508.

The QA Inspector observed that during the shift ZPMC CWI, Hu Wei Qing and various CAWI Inspectors were monitoring the electrical parameters, travel speed and temperatures in Bay #7 during the shift.

During the welding of floor beam FB010-005-026 the QA Inspector verified the welding machine amperes at 171 utilizing a Fluke Meter, the preheat temperature was verified with a Templestick heat temperature crayon. The work being performed was in progress generally appeared to conform to contract specifications.

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The QA Inspector witnessed the air arc gouging of nine indications identified on repair report # B-CWR 040 per request of ZPMC personnel Shen Xuejun.

The QA Inspector visually verified the above listed report number and witnessed ZPMC personnel perform the arc gouging on the OBG diaphragm. The work performed generally appeared to conform to contract specifications.

The QA Inspector Dixon, per request of ZPMC personnel Mr. Shen Xuejun witnessed the ZPMC Technician Mr. Bo Tinru perform magnetic particle testing (MT) on one side of the following listed OBG diaphragm floor beams: FB002-004-001, FB007-005-009, FB008-002-012, FB017-001-148 and FB015-004-001.

After the floor beams were MT inspected on one side the MT technician marked the panels with a white paint marker as MT ok. The QA Inspector asked the Bay # 7 CWI Mr. Hu Wei Qing if these OBG diaphragm floor beams were totally completed with MT inspection, and his reply was yes, but later the QA Inspector was informed that the panels still needed to have MT testing performed on the other side at a later date when they can be turned over.

The QA Inspector observed ZPMC qualified welders Mr. Zhang Qingquan ID 044774, Mr. Wu Wanyong ID 050242, and 069 Mr. Liu Long Xian ID 044786 utilizing Flux Cored Arc Welding (FCAW) process with ZPMC Weld Procedure Specification (WPS) WPS B-T-2231-TCU4b-F to weld the complete joint penetration (CJP) welds on the following OBG diaphragm floor beam weld joint numbers: FB025-02-125 FB17-002-068, FB17-002-0069 and FB025-02-127.

During the welding of floor beam weld joint number FB025-02-125 the QA Inspector verified the welding machine amperes at 298 amperes at 31.4 volts utilizing a Fluke Meter. The work being performed was in progress generally appeared to conform to contract specifications

The QA Inspector randomly observed ZPMC Welding Operator Sun Gu ZuoD ID 058100, utilizing the Submerged Arc Welding (SAW Process with ZPMC Weld Procedure Specification (WPS) WPS-B-T-2221-BL2-C-S-1 to complete cap weld passes for various 12mm to 30mm floor beam diaphragm web plate transition weld joints. The QA Inspector visually verified a single electrode was being utilized for the filler passes, the filler metal was JW-3 with a diameter of 4.8 millimeters.

The QA Inspector observed that during the shift ZPMC CWI, Hu Wei Qing and various ZPMC CAWI Inspectors were monitoring the electrical parameters, travel speed and temperatures in Bay #7 during the shift. The floor beams randomly observed being welded during the QA Inspector's shift having completed cap welds included: FB015-001-026, FB012-007-026, FB015-07-026, FB011-004-026, and FB001-005-026.

Bay 8 Tower

Welding Operator Xu Peipei ID050323 was observed utilizing WPS) WPS-B-T-3221-BU3-C-S-1 to weld cap passes for 38M bottom plate Tower P559 SA 293 (S) weld joint SSD1-SA 293/2A .

The QA Inspector visually verified a single electrode was being utilized for the filler passes, the filler metal was LA-85 with a diameter of 4.8 millimeters.

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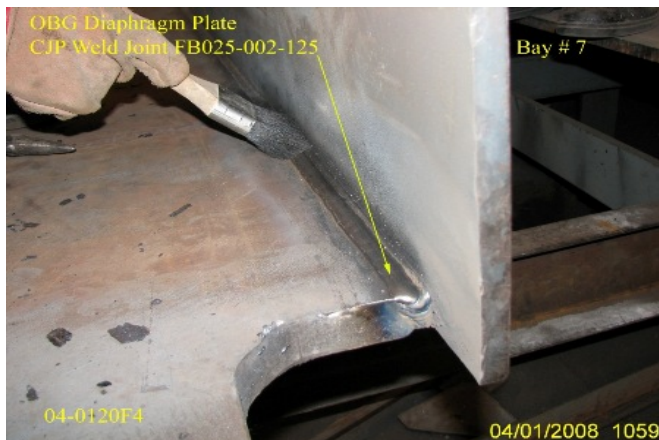
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The Flux was verified as MIL800-HPN1, the base material listed on the (WPS) as HPS 485WT2 Shear Link grade 485. The QA Inspector observed and noted that during the welding operation the ZPMC welding operator would before welding over previous deposited weld pass utilized the proper cleaning method to remove slag prior to resuming the welding operation.

The QA Inspector observed that during the shift ZPMC CWI, Sha Zhi and various ZPMC CAWI Inspectors monitoring the electrical parameters, travel speed and temperatures at several welding stations in Bay #8

The QA Inspector observed that the work performed generally appeared to conform to contract specifications. For more detail see photographs shown below:



### Summary of Conversations:

As noted within the report shown above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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**Inspected By:** Dixon,Roscoe

Quality Assurance Inspector

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**Reviewed By:** Hager,Craig

QA Reviewer